What Is Claimed Is:

1. A composition for use in adhesion or bonding, comprising:
a susceptor; and
a polar carrier,
wherein said susceptor and/or said polar carrier are present in amounts effective to allow said composition to be heated by radio frequency (RF) energy, with the proviso that said susceptor is not a quaternary ammonium salt and that said polar carrier comprises about 13 to about 30 weight percent of the composition with respect to said susceptor.

2. A composition for use in coating, comprising:
a susceptor; and
a polar carrier,
wherein said susceptor and/or said polar carrier are present in amounts effective to allow said composition to be heated by RF energy, with the proviso that said susceptor is not a quaternary ammonium salt and that said polar carrier comprises about 13 to about 30 weight percent of the composition with respect to said susceptor.

3. A composition for use in adhesion, bonding or coating, consisting essentially of:
a susceptor; and
a polar carrier,
wherein said susceptor and/or said carrier are present in amounts effective to allow said composition to be heated by RF energy and that said polar carrier comprises about 13 to about 30 weight percent of the composition with respect to said susceptor.

4. The composition of any one of claims 1-3, wherein the susceptor and the carrier are substantially blended with one another and form a mixture.

5. The composition of any one of claims 1-3, wherein the susceptor and the carrier are disposed on one another.

6. The composition of any one of claims 1-3, wherein the susceptor is an ionic compound.

7. The composition of any one of claims 1-3, wherein the susceptor is a polar compound having a sufficiently high dipole moment that molecular oscillations or vibrations of the compound occur when exposed to RF energy.

8. The composition of any one of claims 1-3, wherein the polar carrier has a dielectric constant of 13-63 (25°C)

9. The composition of any one of claims 1-3, further comprising or consisting essentially of an adhesive compound, wherein said adhesive compound, said susceptor and said polar carrier are blended substantially with one another to form said mixture.

10. The composition of claim 9, wherein said adhesive compound and said susceptor are an ionomer.

11. The composition of any one of claims 1-3, wherein said susceptor comprises or consists essentially of an aqueous dispersion of a sulfopolyester adhesive.

12. The composition of claim 11, wherein said sulfopolyester adhesive is present at a concentration of from about 5% to about 75%.

13. The composition of any one of claims 1-3, wherein said susceptor is one or more ionic salts and is present in the form of a precipitate.

14. The composition of any one of claims 1-3, wherein said susceptor is an ionomeric polymer.

15. The composition of claim 14, wherein said ionomeric polymer is a sulfonated polyester or copolymer thereof, or salt thereof.

16. The composition of claim 15, wherein said ionomeric polymer is the salt of a sulfonated polyester.

17. The composition of claim 16, wherein the sulfonated polyester is a linear polyester with a high Tg.

18. The composition of claim 15, wherein said ionomeric polymer is a acrylic acid polymer or copolymer, or a salt thereof.

19. The composition of claim 15, wherein said ionomeric polymer is gelatin.

20. The composition of claim 19, wherein said gelatin has a pH of about 8 to 12.

21. The composition of claim 19, wherein said gelatin has a pH of about 1 to about 6.

22. The composition according to any one of claims 1-3, wherein said polar carrier is a polyol.

23. The composition according to claim 22, wherein said polyol is selected from the group consisting of ethylene glycol; 1,2-propylene glycol; 1,3-propanediol; 2,4-dimethyl-2-ethylhexane-1,3,diol; 2,2-dimethyl-1,3-propanediol; 2-ethyl-2-butyl-1,3-propanediol; 2-ethyl-2-isobutyl-1,3-propanediol; 1,3-

butanediol; 1,4-butanediol; 1,5-pentanediol; 1,6-hexanediol; 2,2-4-trimethyl-1,6-hexanediol; thiodiethanol; 1,2-cyclohexanedimethanol; 1,3-cyclohexanedimethanol; 1,4-cyclohexanedimethanol; 2,2,4,4-tetramethyl-1,3-cyclobutanediol; and p-xylylenediol.

24. The composition according to claim 22, wherein said polyol is glycerin.

25. The composition according to any one of claims 1-3, further comprising or consisting essentially of a thermoplastic polymer.

26. The composition according to any one of claims 1-3, further comprising or consisting essentially of a thermoset resin.

27. The composition according to any one of claims 1-3, wherein the composition is substantially transparent or translucent.

28. The composition of any one of claims 1-3, further comprising an insoluble porous carrier saturated with said composition.

29. The composition of claim 28, wherein said insoluble porous carrier is a thermoplastic web.

30. The composition of claim 38, wherein said insoluble porous thermoplastic carrier web is a non-woven polypropylene (PP).

31. The composition of claim 37, further comprising a first polyolefin layer and a second polyolefin layer disposed on said insoluble porous carrier, wherein said first and second polyolefin layers are bonded or adhered to the porous carrier by RF heating.

32. A method of bonding or adhering a first substrate to a second substrate, comprising interposing a composition between the first and second substrates, said composition comprising a susceptor and a polar carrier, wherein said carrier and said susceptor are blended substantially with one another and form a mixture, and wherein said susceptor and/or said carrier are present in amounts effective to allow said composition to be heated by RF energy; and applying RF energy to said composition to heat said composition, thereby causing the first and second substrates to become adhered or bonded, with the proviso that said susceptor is not a quaternary ammonium salt.

33. The method of claim 32, wherein said RF energy has a frequency in the range of from about 100 kilohertz to about 5.0 Gigahertz.

34. The method of claim 32, wherein said RF energy has a frequency in the range from about 10 megahertz to about 30 megahertz.

35. The method of claim 32, wherein said RF energy has a power of about 0.1 kilowatts to about 5 kilowatts.

36. The method of claim 32, wherein said polar carrier comprises about 13 to about 30 weight percent of the composition with respect to said susceptor.

37. A method of bonding or adhering a first substrate to a second substrate in less than about one second, comprising interposing a composition between the first and second substrates, said composition comprising a susceptor and a polar carrier, wherein said carrier and said susceptor are blended substantially with one another and form a mixture, and wherein said susceptor and/or said carrier are present in amounts effective to allow said composition to be heated by RF energy; and applying RF energy to said composition to heat said composition, thereby causing the first and second substrates to become adhered or bonded in less than about 1 second.

38. The method of claim 37, wherein said polar carrier comprises about 13 to about 30 weight percent of the composition with respect to said susceptor.

39. The method of claim 37, wherein said composition melts or flows and said first and second substrates becomes bonded or adhered in about 100 milliseconds to about 1 second.

40. The method of claim 32 or 37, wherein said interposing further comprises coating at least one of the first and second substrates with said composition; and placing the first and second substrates in contact with a uniform pressure applied to the first and second substrates.

41. The method of claim 32 or 37, wherein said interposing comprises interposing said composition between a first multilayer stack of the first substrate and a second multilayer stack of the second substrate.

42. The method of claim 32 or 37, wherein the first and second substrates are selected from the group consisting of film, non-woven, or foamed PP, and film, non-woven, or foamed polyethelene (PE).

43. The method of claim 32 or 37, wherein said interposing comprises interposing a composition between the first and second substrates, said composition comprising said susceptor, said polar carrier, and an adhesive compound, wherein said polar carrier, said adhesive compound, and said susceptor are blended substantially with one another and form said mixture.

44. The method of claim 32 or 37, wherein said susceptor is an ionomeric adhesive.

45. The method of claim 44, wherein said ionomeric adhesive is a sulfonated polyester or copolymer thereof, or a salt thereof.

46. The method of claim 44, wherein said ionomeric adhesive is gelatin.

47. The method of claim 44, wherein said ionomeric adhesive is a polyacrylic acid polymer or copolymer thereof, or a salt thereof.

48. An adhered or bonded composition obtained according to the method of claim 32 or 37.

49. A method of bonding or adhering a first substrate to a second substrate, comprising:

applying a first composition onto the first substrate;

applying a second composition onto the second substrate;

contacting said first composition with said second composition;

applying RF energy to said first and second compositions to heat said compositions, thereby causing the first and second substrates to become adhered or bonded;

wherein one of said compositions comprises a susceptor and the other of said compositions is a polar carrier, and the susceptor and/or the carrier are present in amounts effective to allow said first and second compositions to be heated by RF energy.

50. The method of claim 59, wherein said susceptor is not a quaternary ammonium salt.

51. A kit for adhering or bonding a first substrate to a second substrate, comprising one or more containers, at least one of said containers comprising a susceptor composition, said susceptor composition comprising a susceptor and a polar carrier substantially uniformly dispersed in one another to form a mixture, wherein said susceptor and/or said carrier are present in amounts effective to allow said composition to be heated by RF energy.

52. A kit for adhering or bonding a first substrate to a second substrate, comprising at least two containers, wherein one of said containers comprises a susceptor and another of said containers comprises a polar carrier, wherein when said susceptor and said carrier are applied to at least one of said first and second substrates and said susceptor and carrier are interfaced, a composition is formed that is heatable by RF energy.

53. The kit of claim 51 or 52, wherein said susceptor is an ionomeric polymer.

54. The kit of claim 53, wherein said ionomeric polymer is a sulfonated polyester or copolymer thereof, or a salt thereof.

55. The kit of claim 53, wherein said ionomeric polymer is an acrylic acid polymer or copolymer thereof, or a salt thereof.

56. The kit of claim 53, wherein said ionomeric polymer is gelatin.

57. A method of making a composition for bonding or adhering, comprising admixing a susceptor and a polar carrier, wherein said polar carrier and said susceptor are substantially uniformly dispersed in one another and form a mixture, and wherein said susceptor and/or said carrier is present in amounts effective to allow said composition to be heated by RF energy and wherein said polar carrier comprises about 13 to about 30 weight percent of the composition with respect to said susceptor.

58. The method of claim 57; wherein susceptor is an ionomeric polymer.

59. The method of claim 58, wherein said ionomeric polymer is a sulfonated polyester or copolymer thereof, or a salt thereof.

60. The method of claim 57, wherein said ionomeric polymer is an acrylic acid polymer or copolymer thereof, or a salt thereof.

61. The method of claim 57, wherein said admixing further comprises admixing an adhesive compound, said carrier, and said susceptor, wherein said carrier, said adhesive compound, and said susceptor are substantially uniformly dispersed in one another and form said mixture.

62. A composition obtained according to the method of claim 57.

63. A composition comprising an ionomeric polymer and a polar carrier wherein said polar carrier comprises about 13 to about 30 weight percent of the composition with respect to said polymer.

64. The composition according to claim 63, wherein said ionomeric polymer is a sulfonated polyester or a copolymer thereof, or a salt thereof.

65. The composition according to claim 63, wherein said ionomeric polymer is an acrylic acid polymer or copolymer thereof, or a salt thereof.

66. The composition according to claim 63, wherein said ionomeric polymer is gelatin.

67. The composition according to claim 63, wherein said polar carrier is a polyol.

68. The composition according to claim 67, wherein said polyol is selected from the group consisting of ethylene glycol; 1,2-propylene glycol; 1,3-propanediol; 2,4-dimethyl-2-ethylhexane-1,3,diol; 2,2-dimethyl-1,3-propanediol; 2-ethyl-2-butyl-1,3-propanediol; 2-ethyl-2-isobutyl-1,3-propanediol; 1,3-butanediol; 1,4-butanediol; 1,5-pentanediol; 1,6-hexanediol; 2,2-4-trimethyl-1,6-

hexanediol; thiodiethanol; 1,2-cyclohexanedimethanol; 1,3-cyclohexanedimethanol; 1,4-cyclohexanedimethanol; 2,2,4,4-tetramethyl-1,3-cyclobutanediol; and p-xylylenediol.

69. The composition according to claim 67, wherein said polyol is glycerin.

70. A method of curing a thermoset, comprising combining the thermoset with a polar carrier to give a mixture and exposing the mixture to RF energy.

71. The method of claim 70, wherein said thermoset is an epoxy resin, an acrylic resin, a polyester resin or a urethane resin.

72. The method of claim 70, wherein said polar carrier is a polyol

73. The composition according to claim 72, wherein said polyol is selected from the group consisting of ethylene glycol; 1,2-propylene glycol; 1,3-propanediol; 2,4-dimethyl-2-ethylhexane-1,3,diol; 2,2-dimethyl-1,3-propanediol; 2-ethyl-2-butyl-1,3-propanediol; 2-ethyl-2-isobutyl-1,3-propanediol; 1,3-butanediol; 1,4-butanediol; 1,5-pentanediol; 1,6-hexanediol; 2,2-4-trimethyl-1,6-hexanediol; thiodiethanol; 1,2-cyclohexanedimethanol; 1,3-cyclohexanedimethanol; 1,4-cyclohexanedimethanol; 2,2,4,4-tetramethyl-1,3-cyclobutanediol; and p-xylylenediol.

74. The composition according to claim 72, wherein said polyol is glycerin.

75. An apparatus, comprising:

a first portion having a first mating surface;

a second portion, having a second mating surface;

a composition disposed between said first mating surface and said second mating surface, wherein said composition comprises a susceptor and a polar carrier wherein said susceptor and/or said polar carrier are present in amounts effective to allow said composition to be heated by RF energy, and wherein said composition adheres said first mating surface to said second mating surface such that application of a force to separate said first mating surface and said second mating surface results in breakage of the apparatus unless said composition is in a melted state.

76. The apparatus of claim 75, wherein said composition is disposed on said first mating surface and said second mating surface such that said composition is not accessible when said first and second mating surfaces are joined.

77. The apparatus of claim 75, wherein said portion comprises a protrusion from said first mating surface.

78. The apparatus of claim 75, wherein said second portion comprises a recess formed in said second mating surface.

79. The apparatus of claim 77, further comprising an electronic circuit path disposed on said protrusion.

80. The apparatus of claim 75, wherein said first portion and said second portion may be disassembled upon application of RF energy to said composition.

81. A method for cutting a substrate, comprising:

applying a composition to a portion of the substrate, wherein the composition comprises a susceptor and polar carrier wherein said susceptor and/or said polar carrier are present in amounts effective to allow said composition to be

heated by RF energy, and wherein said portion of the substrate defines a first section of said substrate and a second section of said substrate;

melting said portion of the substrate, wherein said melting step includes the step of heating said composition, wherein the step of heating said composition includes the step of applying RF energy to said composition;

after said portion of said substrate has begun to melt, applying a force to said substrate to separate said first section from said second section.

82. A method for dynamically bonding a first adherand to a second adherand, comprising:

(1) creating an article of manufacture comprising the first adherand, the second adherand, and a composition, said composition being placed between the first adherand and the second adherand, wherein said composition can be activated in the presence of an RF field;

(2) moving the article of manufacture along a predetermined path;

(3) generating along a portion of said predetermined path an RF field having sufficient energy to activate said composition, wherein said composition is exposed to said RF field for no more than about 1 second, and wherein said composition is activated by its less than 1 second exposure to said RF field.

83. The method of claim 82, wherein said article passes through said RF field at a rate of at least about one-thousand feet per minute.

84. The method of claim 83, wherein the article passes through said RF field at a rate of about 1000 feet per minute.

85. The method of claim 82, wherein said composition comprises a susceptor and a polar carrier.

86. A method for applying a susceptor composition to a substrate, comprising:

(1) formulating the susceptor composition as a liquid dispersion;

(2) applying said liquid dispersion of said susceptor composition to the substrate;

(3) drying said susceptor composition, wherein said drying step includes the step of applying RF energy across the composition, thereby generating heat within said liquid dispersion.

87. The method of claim 86, further comprising rolling up the substrate after the susceptor composition has dried.

88. A method of bonding or adhering a first substrate to a second substrate, comprising:

applying a first composition onto the first substrate;

applying a second composition onto the first composition;

contacting the second substrate with the second composition; and

applying RF energy to the first and second compositions to heat the compositions, thereby causing the first and second substrates to become adhered or bonded, wherein

one of said compositions comprises a susceptor and the other of said compositions is a polar carrier, and the susceptor and/or the carrier are present in amounts effective to allow the first and second compositions to be heated by RF energy.

89. The method according to claim 88, wherein one of the compositions comprises at least one susceptor and the other of the compositions comprises at least one polar carrier.

90. A method for dynamically bonding a first substrate to a second substrate, comprising:

applying a composition onto the first substrate;

after applying said composition onto the first substrate, forming a roll of

said first substrate;

storing said roll;

unrolling said roll; and

while unrolling said roll:

joining an unrolled portion of the first substrate with a portion of the second substrate such that said portion of the second substrate is in contact with a portion of said composition applied onto the first substrate; and

applying RF energy to said portion of said composition, wherein said portion of said composition heats and melts as a result of the RF energy being applied thereto.

91. A method for manufacturing a radio frequency (RF) active adhesive film, comprising:

formulating an RF active adhesive composition into an extrudable resin;

providing said extrudable resin to a first extruder;

providing a thermoplastic to a second extruder;

providing a sealing material to a third extruder;

layering the output of the first, second, and third extruder to form a three layered film, wherein said thermoplastic is disposed between said sealing material and said RF active adhesive composition; and

stretching said three layered film.

92. The method of claim 91, further comprising rolling up said three layered film after stretching said three layered film.

93. The method of claim 91, further comprising heating said three layered film prior to stretching said three layered film.

94. A method for manufacturing flexible packaging, comprising:

manufacturing a film comprising a first layer comprised of a sealing material, a second layer comprised of a thermoplastic composition, and a third

layer comprised of a radio frequency (RF) active composition, wherein said second layer is disposed between said first layer and said third layer, and wherein said RF active composition can be heated by applying a radio signal thereto;

applying ink to a thermoplastic film;

contacting said first film with said thermoplastic film to form an assembly, wherein said thermoplastic film is in direct contact with said third layer;

applying a radio signal to said assembly; and

nipping said assembly.

95. The method of claim 94, wherein said radio signal has a frequency of not more than about 20 MHz.

96. The method of claim 94, wherein said radio signal has a frequency of not more than about 15 MHz.

97. The method of claim 94, wherein said thermoplastic film is 70 gauge oriented polypropylene.

98. The method of claim 94, wherein said radio frequency active composition comprises a susceptor and a polar carrier.

99. The method of claim 94, wherein said radio signal is applied to said assembly for not more than about one second.

100. A seal for sealing a container, comprising:

an outer layer of polyethylene;

a layer of paper in contact with said outer layer;

a second polyethylene layer in contact with said paper layer;

a layer comprising a non-metallic susceptor composition in contact with said second polyethylene layer;

a barrier layer in contact with said layer comprising said non-metallic

composition; and

an inner layer in contact with said barrier layer, wherein said non-metallic composition heats when a radio signal is applied thereto.

101. The seal of claim 100, wherein said non-metallic composition comprises a susceptor and a polar carrier.

102. A bookbinding method, comprising:

applying a susceptor composition to a portion of one side of a substrate, wherein said susceptor composition can be heated by applying a radio signal thereto;

feeding said substrate into a printing means for printing ink onto said substrate;

after said printing means prints ink on said substrate, stacking said substrate with other substrates;

applying a radio signal to said stack of substrates, thereby heating said susceptor composition; and

nipping the stack.

103. The method of claim 102, wherein said susceptor composition comprises a susceptor and a polar carrier.

104. The method of claim 103, wherein said susceptor composition is transparent.

105. The method of claim 102, wherein said substrate comprises paper.

106. A method of assembling a periodical, comprising:

coating a plurality of substrates with a composition, wherein the composition comprises a susceptor and polar carrier wherein said susceptor and/or said polar carrier are present in amounts effective to allow said composition to be

heated by RF energy;

print ink onto said plurality of substrates;

stacking said plurality of substrates;

applying an electromagnetic field to said plurality of substrates; and

applying pressure to said plurality of substrates.

107. An apparatus for activating a composition using radio frequency (RF) energy, comprising:

a direct current (DC) voltage source;

an RF amplifier coupled to the DC voltage source, wherein the DC voltage source provides DC voltage to the RF amplifier;

an impedance matching circuit coupled to an output of the RF amplifier;

a first probe and a second probe connected to the impedance matching circuit; and

signal generating means, coupled to the RF amplifier, for generating an RF signal, wherein the RF amplifier amplifies the RF signal and the amplified RF signal is provided to the impedance matching circuit, whereby an RF field is generated at the probes and the RF field is used to activate the composition.

108. The apparatus of claim 107, wherein the frequency of the RF signal is within the about 1 kHz to about 5 GHz frequency band.

109. The apparatus of claim 107, wherein the frequency of the RF signal is within the about 1 MHz to about 80 MHz frequency band.

110. The apparatus of claim 107, wherein the frequency of the RF signal is within the about 10 MHz to about 15 MHz frequency band.

111. The apparatus of claim 107, wherein the power of the amplified signal is between about 50 watts and 2 kilowatts.

112. The apparatus of claim 107, wherein the power of the amplified

signal is between about 500 watts and 2 kilowatts.

113. The apparatus of claim 107, wherein a DC voltage provided to the RF amplifier by the DC voltage source is between about 50 and 200 dc volts.

114. The apparatus of claim 107, wherein a DC voltage provided to the RF amplifier by the DC voltage source is between about 130 and 200 dc volts.

115. The apparatus of claim 107, wherein the impedance matching circuit comprises:
a connector for receiving an RF signal;
a balun transformer coupled to the connector;
a first and a second variable capacitor coupled to the balun transformer; and
an inductor connected between the first and second variable capacitor.

116. The apparatus of claim 107, wherein the RF amplifier comprises means for amplifying a milliwatt signal up to a multiple kilowatt continuous wave amplitude signal with greater than eighty percent power conversion efficiency while operating directly from a 100 to 200 VDC power source, with an instantaneous bandwidth of two-thirds of an octave in the middle High Frequency RF spectrum between 3 and 30 MHz.

117. The apparatus of claim 107, further comprising a processor for controlling the frequency of the RF signal generated by the signal generating means, and a power sensor coupled to the impedance matching circuit for providing a signal to the processor, wherein the signal is used by the processor in controlling the frequency of the RF signal generated by the signal generating means.

118. The apparatus of claim 116, wherein the signal provided to the

processor corresponds to the amount of power reflected from the impedance matching circuit.

119. The apparatus of claim 116, wherein the signal provided to the processor corresponds to the amount of power provided to the impedance matching circuit.

120. The apparatus of claim 116, wherein the signal provided to the processor corresponds to the ratio of the amount of power provided to the impedance matching circuit and the amount of power reflected from the impedance matching circuit.

121. The apparatus of claim 107, wherein the first probe is a conductive tube.

122. The apparatus of claim 121, wherein the first probe has a diameter of about one-eighth of an inch.

123. The apparatus of claim 107, wherein one end of the first probe is connected to the impedance matching circuit and the other end is curled to reduce corona effects.

124. The apparatus of claim 107, wherein the first probe is sinusoidally shaped.

125. The apparatus of claim 107, wherein the probes include a proximal region in which the probes are spaced apart, an activation region in which the probes are proximate to one another, and a distal region in which the probes are spaced apart.

126. The apparatus of claim 125, wherein the probes are substantially

parallel to each other in the activation region.

127. The apparatus of claim 107, further comprising a third probe connected to the impedance matching circuit.

128. The apparatus of claim 107, wherein the impedance matching circuit comprises an inductor, wherein when the amplified RF signal is provided to the impedance matching circuit an alternating current flows through the inductor.

129. The apparatus of claim 128, wherein the first probe, the second probe, and the inductor are connected in series such that the inductor is connected between the first probe and the second probe.

130. An apparatus for activating a composition using radio frequency (RF) energy, comprising:

a 100 to 200 VDC power source;

amplifier means for amplifying a milliwatt RF signal up to at least a kilowatt continuous wave amplitude RF signal while achieving greater than eighty percent power conversion efficiency, the amplifying means achieving an instantaneous bandwidth of two-thirds octave in the middle high frequency RF spectrum between 3 MHz and 30 MHz, and operating directly from the 100 to 200 VDC power source;

signal generating means for generating the milliwatt RF signal to be amplified by the amplification means; and

an impedance matching circuit coupled to an output of the amplification means, wherein

the amplification means amplifies the milliwatt RF signal, and the amplified RF signal is provided to the impedance matching circuit, whereby an RF field is produced and the RF field is used to activate the composition.

131. The apparatus of claim 130, further comprising a first probe and a second probe connected to the impedance matching circuit.

132. The apparatus of claim 130, wherein when the amplified RF signal is provided to the impedance matching circuit an RF field emanates from the probes.

133. The apparatus of claim 132, wherein the impedance matching circuit comprises an inductor, wherein the first probe, the second probe, and the inductor are connected in series, with the inductor being placed between the probes.

134. The apparatus of claim 130, wherein the first probe is a conductive tube.

135. The apparatus of claim 134, wherein the tube is circular and has a diameter of about one-eighth of an inch.

136. The apparatus of claim 130, wherein one end of the probe is connected to the impedance matching circuit and the other end is curved to reduce corona effect.

137. The apparatus of claim 130, wherein the probes are sinusoidally shaped.

138. The apparatus of claim 130, further comprising a third probe connected to the impedance matching circuit.

139. A method for inductively liquefying a composition, comprising the steps of:

producing an RF signal;

amplifying the RF signal;

providing the amplified RF signal to an impedance matching circuit comprising a first probe and a second probe, and wherein when the amplified RF signal is provided to the impedance matching circuit an RF field is produced at the probes; and

placing the composition in proximity to the probes so that the composition is exposed to the RF field, whereby the composition's exposure to the RF field causes the temperature of the composition to increase.

140. The method of claim 139, further comprising the step of controlling the frequency of the amplified RF signal such that the frequency of the amplified RF signal follows the resonant frequency of the impedance matching circuit while the composition is heating.

141. The method of claim 139, wherein the frequency of the RF signal is between about 1 kHz and about 5 GHz.

142. The method of claim 139, wherein the frequency of the RF signal is between about 1 MHz and about 80 MHz.

143. The method of claim 139, wherein the frequency of the RF signal is between about 10 MHz and 15 MHz.

144. The method of claim 139, wherein the composition is exposed to the RF field for not more than about 1 second.

145. The method of claim 139, wherein the composition is exposed to the RF field for not more than about 0.1 seconds.

146. The method of claim 139, wherein the composition is exposed to the RF field for not more than about 0.075 seconds.

147. The method of claim 139, wherein the power of the RF signal provided to the impedance matching circuit is about 50 watts to 2 kilowatts.

148. The method of claim 139, wherein the composition comprises an ionomeric polymer and a polar carrier.

149. A method for heating a composition comprising an ionomeric polymer and a polar carrier, the method comprising the steps of:

generating an RF signal;

using the RF signal to generate an RF field; and

exposing the composition to the RF field.

150. The method of claim 149, wherein the composition is exposed to the RF field for not more than about 1 second.

151. The method of claim 149, wherein the composition is exposed to the RF field for not more than about 0.5 seconds.

152. The method of claim 149, wherein the composition is exposed to the RF field for not more than about 0.1 seconds.

153. The method of claim 149, wherein the composition is exposed to the RF field for not more than about 0.075 seconds.

154. The method of claim 149, wherein the frequency of the RF signal is between 1 kHz and 5 GHz.

155. The method of claim 149, wherein the frequency of the RF signal is between 1 MHz and 80 MHz.

156. The method of claim 149, wherein the frequency of the RF signal is between 10 MHz and 15 MHz.

157. An interdigitated probe system, comprising:

a first element comprising a first conductor and one or more second conductors connected to the first conductor; and

a second element comprising a first conductor and one or more second conductors connected to the first conductor, wherein

the first element and the second element are orientated such that the one or more second conductors of the first element are coplanar with the one or more second conductors of the second element and each one of the one or more second conductors of the first element are adjacent to at least one of the one or more second conductors of the second element.

158. An apparatus for activating a sample, comprising:

an alternating voltage supply;

a first output terminal and a second output terminal coupled to said alternating voltage supply, wherein an alternating voltage is produced between said first and second output terminals; and

a first probe coupled to first output terminal and a second probe coupled to said second output terminal.

159. The apparatus of claim 107, wherein said probes include a proximal region in which said probes are spaced apart, an activation region in which said probes are proximate to one another, and a distal region in which said probes are spaced apart.

160. The apparatus of claim 107, wherein said probes are conductive tubes.